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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/603,941	06/27/2000	Zhenan Bao	BAO 16-25-12	4437

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EXAMINER
ECKERT II, GEORGE C

ART UNIT	PAPER NUMBER
2815	

DATE MAILED: 07/22/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.	Applicant(s)
09/603,941	Bao et al.
Examiner	**Art Unit**
George C. Eckert II	2815

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *Apr 25, 2002*.

2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above, claim(s) *13-18* is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1, 2, 4-12, and 19* is/are rejected.

7) ☒ Claim(s) *3* is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☒ The proposed drawing correction filed on *Apr 25, 2002* is: a) ☒ approved b) ☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____
4) ☐ Interview Summary (PTO-413) Paper No(s). _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Response to Amendment

1. Applicant's amendment dated April 25, 2002 in which claim 19 was amended has been entered of record.

Election/Restriction

2. Claims 13-18 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 6.

Drawings

3. The corrected or substitute drawings were received on May 6, 2002. These drawings are acceptable.

Claim Rejections - 35 U.S.C. § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Rejections of claims 1-12 and 19 under 35 U.S.C. 112, second paragraph, are withdrawn based on applicant's arguments and amendments.

Claim Rejections - 35 U.S.C. § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371© of this title before the invention thereof by the applicant for patent.

5. Claims 1, 2, 4, 6-12 and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by US 5,953,627 to Carter et al. Carter et al. teach, with reference to figures 1-5, the formation of a silsesquioxane dielectric layer 6 (10) above a substrate 2 which is suitable for organic FETs. With regard to claim 2, Carter et al. teach that the silsesquioxane precursor may comprise alkyl(methyl) phenyl groups (col. 2, lines 45-48). With regard to claim 4, Carter et al. teach that the dielectric film has a dielectric constant of greater than 2 (see the various examples in col. 5, lines 11-14). With regard to claims 6-9, 11 and 12, these claims are directed to the process by which the product is formed. Note that a "product by process" claim is directed to the product per se, no matter how actually made, In re Hirao, 190 USPQ 15 at 17 (footnote 3). See also In re Brown, 173 USPQ 685; In re Luck, 177 USPQ 523; In re Fessmann, 180 USPQ 324; In re Avery, 186 USPQ 161; In re Wertheim, 191 USPQ 90 (209 USPQ 554 does not deal with this issue); In re Marosi et al, 218 USPQ 289; and particularly In re Thorpe, 227 USPQ 964, all of which make it clear that it is the patentability of the final product per se which must be determined in a "product by process" claim, and not the patentability of the process, and that an old or obvious product

produced by a new method is not patentable as a product, whether claimed in "product by process" claims or not. Note that applicant has the burden of proof in such cases, as the above caselaw make clear. Instantly, these claims do not structurally differentiate over that taught by Carter et al. and as such are anticipated.

Regarding the limitations that a FET is formed on the substrate, Carter et al. teach the formation of silsesquioxane to improve the characteristics of integrated circuits which inherently include transistors.

Claim Rejections - 35 U.S.C. § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Carter et al. in view of Fergason et al. Carter et al. taught the formation of silsesquioxane on a substrate but did not teach that the substrate was an indium-tin oxide (ITO) coated plastic substrate. Fergason et al. teach the use of an ITO coated plastic substrate (col. 9, lines 3-9). Carter et al. and Fergason et al. are combinable because they are from the same field of endeavor. At the time of the invention it would have been obvious to a person of ordinary skill in the art to use a plastic substrate coated with ITO. The motivation for doing so is that a plastic substrate is more flexible than a

conventional glass substrate and less prone to cracking. Therefore, it would have been obvious to combine Carter et al. with Fergason et al. to obtain the invention of claim 5.

Allowable Subject Matter

7. Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The following is a statement of reasons for the indication of allowable subject matter: though the prior art teaches the use of silsesquioxane precursors, it does not teach the formation of such a device wherein the precursors are cured to a temperature of less than 150° C. As taught and argued by Applicant, such low curing temperature will result in the inclusion of the organic radicals of the precursor in the final silsesquioxane layer, which otherwise are not present at higher cure temperatures. Thus, the final structure of such a layer, cured at 150° C, is not taught or made obvious.[1]

Response to Arguments

8. Applicant's arguments filed April 25, 2002 have been fully considered but they are not persuasive. Applicant argues that the rejection over Carter et al. under 35 U.S.C. §102 must fail,

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[1] It is noted that US 4,278,804 to Ashby et al. teaches (col. 8, lines 26-35) the formation of a silsesquioxane layer which is cured between 75 - 200° C to obtain a final layer comprising $RSiO_{3/2}$ where R is methyl. However, motivation to combine Ashby et al. could not be established as it is from a different field of invention and does not solve the same problem faced by applicant.

stating that, conversely to that instantly taught, Carter et al. form a device using precursors in the presence of an organic amine (which Applicant's do not) and cure the precursor to temperatures up to and above 400° C (whereas Applicant's cure at a "low" temperature). However, these arguments are not convincing.

First, the open ended transition used by Applicant in claim 1 does not negate the use of the organic amine of Carter et al. That is, the instant claim merely cites the device "comprising" a film of at least one liquid-deposited silsesquioxane precursor to provide a high-dielectric strength film. Carter et al. teach such a film. Specifically, as pointed out in the above rejection, Carter et al. teach a device in which a silsesquioxane precursor of alkyl(methyl) phenyl is used to form the final layer of a high-dielectric strength film. That Carter et al. additionally use the amine is not excluded by the instant claim. Furthermore, such arguments are addressed to limitations not in the claim. That is, Applicant argues that the final structure of Applicant's dielectric layer is different chemically and in properties from that taught by Carter et al. However, such differences, while perhaps existing between Applicant's disclosed final structure and that of Carter et al.'s, are not supported by the limitations included in the claim.

Second, the limitation that the film is one cured at a "low-temperature" does not overcome Carter et al., in light of its broadest reasonable interpretation. That is, many similar films in the art are cured at a "low-temperature" of greater than 150° C (see US 6,054,769 to Jeng, col. 4, lines 61-63; "a low temperature of 300° C" and US 5,976,966 to Inoue, Abstract; "low temperature annealing at 400° C"). As such, because "low temperature" does not confine

the limitation to any certain temperature, it is insufficient to overcome the teaching of Carter et al. Especially in light of claim 3, where the "low temperature" is further defined as below 150° C.

Finally, because Carter et al. have been shown to teach the limitations of claim 1, applicant's argument regarding the rejection under 35 U.S.C. §103 is not persuasive. Applicant argues that Fergason fails to remedy Carter et al., however, as shown above, Carter et al. teach the limitations as discussed and thus Fergason is not relied on for those teachings.

Conclusion

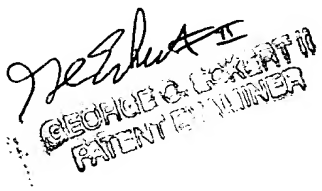
9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to George C. Eckert II whose telephone number is (703) 305-2752.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Eddie Lee can be reached on (703) 308-1690. The fax phone number for this Group is (703) 308-7722.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956.



GCE
July 19, 2002